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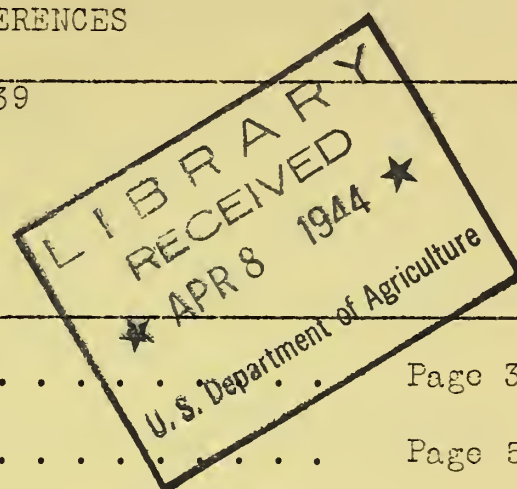
S O I L C O N S E R V A T I O N L I T E R A T U R E  
S E L E C T E D C U R R E N T R E F E R E N C E S

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Periodical Articles . . . . .	Page 34
Book and Pamphlet Notes and Abstracts . . . . .	Page 51
State Experiment Station and Extension Publications . . .	Page 56
U.S. Government Publications . . . . .	Page 59
Soil Surveys . . . . .	Page 61
Translations . . . . .	Page 62

"To provide a strong and secure basis for a lasting civilization, the new democratic movement must also have a deeply ingrained cultural side. It must be founded not on propaganda nor on regimentation, but on the steady growth of real understanding among the people, and on real participation by them in discussion and planning and in the execution of policies that affect all our lives. True democracy must rest on tolerance and honest thinking. Informed public opinion, based upon growing knowledge and courageous facing of facts, is the only safe foundation for democracy."

M. L. Wilson

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Washington office requests should be submitted on Form SCS-405, which will be supplied by the Library on demand.

*Mildred Tonten*  
Librarian

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PERIODICAL ARTICLESAerial Photography

Crawford,D.A. Aerial photographic surveying. Jour.Inst.Engin.  
Australia 10(11):413-417,illus. November 1938.

Grover,C.G. Aero land mapping. West.Farm Life 41(2):3,8,illus.  
Jan.15,1939.

Agricultural Planning

Wallace,H.A. Essentials of the national agricultural program.  
U.S.Ext.Serv.Rev.10(2):19-20. February 1939.

The general objectives of the Department of Agriculture and how reorganization is facilitating work toward these ends is explained by the Secretary in this,the first of a series of articles on the Department's program and the policies of the different bureaus and action agencies in carrying it out.

Wilson,M.L. Soils,crops,and men;a study in harmony. Jour.Amer.Soc.  
Agron.31(1):1-10. January 1939.

Presented on the joint program of the American Society of Agronomy and the Soil Science Society of America,November 17,1938,Washington, D.C.

Climatology

Potzger,J.E. Microclimate and a notable case of its influence on a ridge in central Indiana. Ecology 20(1):29-37,illus. January 1939.  
"Literature cited,"pp.36-37.

Thorntwaite,C.W.,Holzman,Benjamin and Blumenstock,D.I. Climatic research in the Soil conservation service. U.S.Weather Bur.Mo.  
Weather Rev.66(11):351-368,illus. November 1939.

Climatic research,according to this article,involves analyses of precipitation records in terms of storm duration,intensity and area; drought,temperature,a consideration of the flood problem in its bearing on erosion hazards,evaporation from various types of land surfaces,and soil-moisture deficiency.

Dams

Ellsworth,S.M. New sand wash brook dam and reservoir at Pittsfield, Massachusetts. New Eng.Water Works Assoc.Jour.52(2):190-200.  
June 1938.

Design and construction of concrete core earthfill dam 40 ft.high, 1,600 ft.long;spillway has designed capacity of 1,280 cu.ft.per sec. equal to 765 cu.ft.per sec.sq.mile;cost of construction.



Forester, D.M. The Imperial dam, all-American canal system, Boulder canyon project. Reclamation Era 29(2):28-36, illus. February 1939.

Hieronymus, F.M. Snyder, Okla. goes to the hills for a surface water supply. Engin. News-Rec. 122(7):224-225, illus. Feb. 16, 1939.

The new \$125,000 system consists of an earth dam storing runoff from the headwaters of Otter Creek in the Wichita mountains northwest of town.

Holway, W.R. Pensacola dam gets under way. Engin. News-Rec. 122(7):222-224, illus. Feb. 16, 1939.

Structural details of a combination power and flood control dam on the Grand river at Pensacola, Okla.

Spencer, F.M. Boca dam, Truckee storage project, California-Nevada. Reclamation Era 29(2):21-24, illus. February 1939.

### Drought

Gaherty, G.A. Drought, a national problem. Engin. Jour. [Canada] 22(2):53-55. February 1939

Paper presented at the general professional meeting of the Engineering Institute of Canada, Ottawa, Ontario, Feb. 15, 1939.

Summary - "The author outlines the position of the drought area in our national economy and the activities of the Government under the Prairie Farm Rehabilitation Act with particular reference to the work of the engineer in providing water supply. The problems of water conservation are discussed and the importance of the fundamental data gathered by the technical services of the Government is stressed."

### Engineering in Soil Conservation

Chambers, T.B. Engineering in soil and water conservation. Soil Conserv. 4(7):153-156. January 1939.

Cory, H.T. Some engineering aspects of the water facilities program. Soil Conserv. 4(7):172-174, 177. January 1939.

Enlow, C.R. Agronomic measures often require mechanical support. Soil Conserv. 4(7):170-171, illus. January 1939.

Points out the necessity for cooperation between the agronomist and the engineer.

Jepson, H.G. Graphic solution of channel dimensions by the Manning formula. Soil Conserv. 4(7):161-162, 165, illus. January 1939.

Describes and applies chart developed by V.W. Thalmann for solution of outlet channel dimensions.

## Evaporation

Ol' devil evaporation. Air and sun take heavy toll of moisture needed by Salt river valley farmers - watershed research upsets many common ideas. Ariz.Prod.17(15):4. Oct.15,1938.

Based on Technical Bulletin 76 of the University of Arizona - "The Relations of Stream Flow to Precipitation on the Salt River Watershed Above Roosevelt Dam" by C.K.Cooperrider and G.G.Sykes.

## Floods and Flood Control

[American society of civil engineers. Committee on flood protection data] Flood-protection data.Progress report of the committee. Amer.Soc.Civ.Engin.Proc.65(1):93-100. January 1939.

The report of the committee, Gerard H. Matthes, chairman, was presented at the annual meeting of the society January 18, 1938.

Recent publications on floods are included.

Bailey, S.M. and Schneider, G.R. The maximum probable flood and its relation to spillway capacity. Civ.Engin.9(1):32-35, illus. January 1939.

Presents a set of isohyetal maps "which go far" towards answering the question of "what storm, or maximum probable rainfall, should be 'transposed' to the drainage area in question."

In addition to explaining the construction of these maps, the authors discuss their application, concluding with a brief step-by-step summary of the procedure of estimating spillway capacity.

Kinnear, E.R. Engineering planning in flood control. Soil Conserv. 4(7):178-180. January 1939.

Lowdermilk, W.C. Flood control in soil conservation. Agr.Engin. 20(1):17-20, illus. January 1939.

"Literature cited," p.20.

Address before the annual meeting of the American Society of Agricultural Engineers at Asilomar, Pacific Grove, Calif., June 29, 1938.

## Flow of Water

Allen, Jack. The resistance to flow of water along a tortuous stretch of river and in a scale model of the same. Jour.Inst.Civ.Engin. no.4, 1938-39, pages 115-132, illus. February 1939.

"Bibliography," p.132.

Hough, J.L. Underflow in Lake Lee, North Carolina. Civ.Engin.9(1): 36, illus. January 1939.

Keulegan, G.H. Laws of turbulent flow in open channels. Jour. Research(Natl.Bur.Standards)21(6):707-741. December 1938.

"References," p.741.



Landsford, W.M. A magnetic flowmeter. Mech. Engin. 61(1):20-21, illus. January 1939.

Lane, E.W. Entrainment of air in swiftly flowing water. Observations of the flow over spillways yield conclusions of interest to hydraulic engineers. Civ. Engin. 9(2):89-91, illus. February 1939.

"Air entrainment in swiftly flowing water may upset the most careful computations of stilling-basin or chute capacity, by reducing the velocity of flow and increasing the volume of water. Few quantitative data on the phenomenon are available, and Professor Lane's observations on the factors causing it should point the way to more intensive investigations."

Yield from wells of various diameters. The relation of well diameter and drawdown to yield. Johnson Natl. Drillers Jour. 11(1):1-7. Jan/Feb. 1939.

Discusses flow of underground water and performance of wells governed by underlying hydraulic principles.

### Grass

Blackman, C.L. More grass for dairy cattle. Ohio Farmer 183(1):5, 13, illus. Jan. 14, 1939.

"The soil conservation program as outlined by the U.S.D.A. prescribes that a larger percentage of our acres be devoted to the production of grass. This immediately raises the question in the mind of the livestock or dairy farmer as to how he can best utilize these extra acres of grass. In this article, one of the series on 'Ohio and the Nation's Farm Policy,' the author discusses the use and economy of more good pasture and high quality hay in the dairy ration."

Montgomery, G.A. Back to Prairie grass. Capper's Farmer 50(3):14, illus. March 1939.

"Facts brought out in two localities, Temple, in central Texas (SCS project) and Dalhart (U.S.D.A. dry land experiment station) in the north-west corner of the Panhandle, indicate that seed [of little bluestem and blue grama] may best be harvested as hay, which later is scattered on the seed-bed and worked into the soil lightly with a disk drill."

It is said that this information would seem to offer a solution to the harvesting and seeding problems which have prevented many farmers from turning eroding acres back to grass.

Murphy, R.P. and Arny, A.C. The emergence of grass and legume seedlings planted at different depths in five soil types. Jour. Amer. Soc. Agron. 31(1):17-28, illus. January 1939.

"Literature cited," p. 28.

West, Oliver. The significance of percentage area determinations yielded by the percentage area or density list method of pasture analysis. Jour. Ecology 26(1):210-217. February 1938.

"References," p. 217.

The percentage area method is described and discussed. The difficulty of using estimated percentage area results for the detection of change in pasture or grassland is pointed out.



Young, G.E. Let it go to grass. U.S. Bur. Agr. Econ. Land Policy Rev. 2(1):25-27. Jan/Feb. 1939.

"Public grazing areas in the corn belt, established through the purchase of many small uneconomic farms within a soil conservation district, deserve careful consideration as a means of assisting individual farmers to establish a grazing type of farming... Through local grazing associations, or the soil conservation district organizations, farmers adjoining the public grazing areas could arrange to use the pastures under such regulations as would be necessary to protect their carrying capacity."

### Groundwater

Vibert, A. Le mouvement de l'eau dans le sol. Application des formules rationnelles donnant le débit des ouvrages de captage (Application of rational formulas giving the rate of ground precipitation) Génie Civil 113(20):406-409. Nov. 12, 1938; 113(21):427-429, illus. Nov. 19, 1938.

Wells, H.M. Land and water in the high plains. U.S. Bur. Agr. Econ. Land Policy Rev. 2(1):20-24, illus. Jan/Feb. 1939.

Warns against possible consequences of unregulated and unwise removal of ground water in connection with agricultural land planning in the high plains.

### Gullies

Ireland, H.A. "Lyell" gully, a record of a century of erosion. Jour. Geol. 47(1):47-63, illus. Jan/Feb. 1939.

"Sir Charles Lyell, when he visited the United States in 1846, published a description and a woodcut of a gully which he observed near Milledgeville, Georgia. Several photographs and statements give subsequent information on the gully since 1846. Similar gullies are widespread in the Piedmont area, many of which have been studied by the writer. An accurate survey and detailed study of the gully using physiographic evidence, the age of old pine trees in the gully, and the details of Lyell's description, make it possible to reconstruct the conditions of 1846 and to interpret the changes since that date. As the gully was 20 years old when Lyell saw it, there is thus a documented history of over 110 years of erosion." - Abstract.

### Hydraulics and Hydrology

Burns, R.V. and White, C.M. The protection of dams, weirs, and sluices against scour. Inst. Civ. Eng. Jour. 10(1):23-46, illus. November 1938. Paper no. 5127.

Fifth annual report of special committee on hydraulic research (American society of civil engineers) as prepared for the 1939 annual meeting of the society. Civ. Engin. 9(2):109-110, illus. February 1939.

Progress report on various projects and future publications.

Rouse, Hunter. Laboratory investigation of flume traction and transportation. Discussion. Amer. Soc. Civ. Engin. 65(2):291-296, illus. February 1939.

Discussion of paper with above listed title by Y.L. Chang, appearing in Nov. 1937 Proceedings.

Vogel, H.D. Observed effects of geometric distortion in hydraulic models. Discussion. Amer. Soc. Civ. Engin. Proc. 65(2):309-310. February 1939.

Discussion of paper with above title, by K.D. Nichols, appearing in June 1938 Proceedings.

### Implements and Machinery

Ryerson, G.E. and Hull, W.X. Equipment problems in conservation work. Soil Conserv. 4(7):181-182, 184. January 1939.  
Tillage machinery is discussed.

### Infiltration

Roessel, B. Doorlatendheidsbepalingen (Measurement of soil infiltration rates) Tectona 31(8):521-538, illus. August 1938.  
"Literatuur", p. 536.  
Article in Dutch, with English summary.

### Irrigation and Drainage

Farmer finds short rows will save irrigation water. Rows of corn forty rods long need much less moisture than larger ones. Colo. Wool Grower 4(11):13. January 1939.  
Refers to demonstration in Colorado.

Hamilton, C.L. Farm drainageways and outlets. Soil Conserv. 4(7):156-160. January 1939.

McLaughlin, W.W. Irrigation and the conservation of the range. Soil Conserv. 4(7):175-177. January 1939.

Mayer, I.D. An approach to better drainage practice. Agr. Engin. 20(2):64, 70. February 1939.

Presented before the Soil and Water Conservation Division at fall meeting, American Society of Agricultural Engineers, Chicago, Ill., Dec. 2, 1938.

The necessity for adequate ditch maintenance to insure runoff control and erosion prevention is emphasized.

### Land Utilization

Blow, T.H. Land use as related to soil fertility. Better Crops With Plant Food 23(1):12-13, 38-39, illus. January 1939.

After reviewing the situation in Vermont the author states that "a more practical knowledge of land use through a more accurate study of land classes will enable the farmer to make better use of fertility practices and a more equitable expenditure of his dollars which go for seeds and fertilizers."

Hanson, H.C. Check-areas as controls in land use. Sci. Mo. 48(2):130-146, illus. February 1939.

"An important source of basic information, that has been neglected in the past, is land in natural condition used as checks, controls or



standards by which land may be measured. Planning, if it is to be as serviceable to humanity as possible, must provide these check-areas, even though land in original condition is no longer available. Carefully selected tracts must be set aside as soon as possible in each of the natural land-use areas of the United States by the various state and federal agencies concerned with land-use problems."

Klemme, R.T. Some aspects of land ownership in Texas county. Okla. Agr. Exp. Sta. Okla. Farm Econ. 11(6):136-146, illus. December 1938. "Results of an analysis of the land ownership data for Texas county (Okla.) indicate that there is an inverse relationship between size of holdings and assessed value of land. In this county private ownership tends to be greater upon the better grades of land, and corporation holdings greater on poor grades of land. Land ownership data seem to be a fairly accurate indicator of the character of land utilization."

Manifold, C.B. The soil conservation approach to proper land use. Soil Conserv. 4(8):185-189, illus. February 1939. Data in tabular form indicate changes necessary to bring about proper land use. Same data are also shown graphically.

Thomas, H.L., Nygard, I.J. and Bullard, L.E. Measuring the effect of land use on erosion. Soil Conserv. 4(8):190-191, illus. February 1939. A practical method of obtaining and analyzing information from a detailed soil conservation survey for use in planning an erosion-control program for an individual farm. It is said to be especially applicable on small watersheds and was developed by technicians on the Beaver creek erosion-control demonstration area in southeastern Minnesota.

Wood, G.L. Use and abuse of the good earth. Econ. Rec. 14(27):238-245. December 1938. A discussion of three recently published land-utilization studies, namely, I. The Limits of Land Settlement, edited by Isaiah Bowman; II. Land Utilization in China, by J.L. Buck; and III. Group Settlement: Ethnic Communities in Western Canada by C.A. Dawson (v. 7 of Canadian Frontiers of Settlement series)

### Legumes

Clarke, I.D., Frey, R.W. and Hyland, H.L. Seasonal variation in tannin content of *lespedeza sericea*. Jour. Agr. Research 58(2):131-139, illus. Jan. 15, 1939. "Literature cited," p. 138-139.

Cooper, J.F. New cover crop for Florida. Prog. Farmer and South. Ruralist (Ga./Ala./Fla. ed.) 54(3):10, illus. March 1939. "Blue lupine, a new winter legume which produces large tonnages of green material and high seed yields, seems to be even better for northwestern Florida farms and perhaps warmer areas in other southeastern states than hairy or Augusta vetch or Austrian peas."

Rogers, T.H. and Sturkie, D.G. Effect of fertilizers and method of their application on nodulation, growth, and nitrogen content of hairy vetch. Jour. Amer. Soc. Agron. 31(2):141-148, illus. February 1939.

## Meetings

Journal of Farm Economics, v.21, no.1, pp.1-418. February 1939.

This number is devoted to the proceedings of the 29th annual meeting of the American Farm Economics Association.

Partial contents: Public control of land use in the United States, by G.S.Wehrwein, pp.74-85. (Discussion by F.F.Elliott, pp.85-88); Adapting farm management research to new opportunities, by S.E.Johnson, pp.98-106; Soil productivity related to farm organization and income, by G.W.Miller, pp.107-113; Type of farming modifications needed in the Great Plains, by E.A.Starch, pp.114-120. (Discussion by E.C.Johnson, pp.120-122); Federal purchase and administration of submarginal land in the Great Plains, by L.C.Gray, pp.123-131; Land values and government agricultural policy, by C.H.Hammer, pp.258-261; Tax reverted lands in the lake states, pp.276-279; Land use problems in Minnesota, by R.M.Gilbreast, pp.280-286; Land use problems in Michigan, by F.P.Struhsaker, pp.287-290.

The 38th annual meeting of the Society of American foresters...

Columbus, Ohio, December 15-17, 1938. Jour.Forestry 37(2):81-202. February 1939.

Papers and Committee reports of special interest are as follows: Report of Committee on farm forestry education in the agricultural colleges, pp.123-129; Report of the Committee on watershed management, pp.137-138; Social and economic effects of the Great Plains shelter-belt in terms of soil and human betterment by G.R.Durroll, pp.144-148; The place of forestry in soil and water conservation in the Tennessee valley, by W.M.Baker, pp.157-160; Integration of wildlife management with forestry in the central states, by V.H.Cahalane, pp.162-168; The farm forestry situation in the central states, by L.E.Sawyer, pp.173-180; Watersheds and waterways, by A.C.Ringland, pp.181-186.

## Orchard Cover Crops

Ahlson, C.B. and Hutchinson, George. Permanent cover in irrigated orchards. Soil Conserv. 4(8):199-202, illus. February 1939.

The authors state that there are many questions yet to be answered regarding the practical and economic limitations in the use of permanent cover. They cite a series of observations, made in various fruit-producing areas throughout California, which are not intended to answer all the questions but which are submitted as an indication that there is need for more research along this line.

## Persimmon

Beattie, R.K. and Crandall, B.S. Disease attacks the persimmon. Amer.Forests 45(3):120-121, 124, illus. March 1939.

This article is of interest because of the value of the persimmon tree to help stop erosion on certain worn-out soils. Also its early and abundant fruiting furnishes a considerable food supply to wild game, fur bearers and to some farm animals.

Crandall, B.S. Cephalosporium wilt of persimmon in the southeast. U.S.Bur.Plant Indus.Div.Mycology and Disease Survey.Plant Disease Reporter 23(4):56-58, illus. Mar.1, 1939.



## Rain Gauges

Marz, Erhard. Schauerchronograph. Ztschr. Instrumentenkunde 56(4): 167-170, illus. April 1936.  
Article in German.

"The instrument is devised for the express purpose of indicating the exact time at which the slightest rain has fallen. The manner in which the whole apparatus functions is given in detail."

## Rainfall

Coberly, C.F. "Rainmaker" helps soil conservation. Engin. News-Rec. 122(3):89-90, illus. Jan. 19, 1939.

"A pump-spray device developed by engineers working in the Soil Conservation Service gives controlled rainfall rates over small areas and so makes possible a rational design of surface contouring to reduce concentrations of runoff from severe storms to a minimum. Data on soil absorption on severe rain storms are a by product."

Lloyd, David. Variation in loss over catchment areas. Water and Water Engin. 39:570; 40:28-29. November 1937, January 1938.

I. Gives information on provisional values for loss during percolation.

II. Discusses Vermeule's and Penck's methods of estimating the total loss of rain water over a catchment, pointing out that their methods "fail outside a limited range of rainfall because the relation of 'evaporation' loss to rainfall is curvilinear. In addition, both methods omit loss caused by insolation and loss during percolation."

Sherman, C.W. Actual duration of "one-day" and "two-day" rain storms. Civ. Engin. 9(3):179. March 1939.

Data developed after a study and classification of rainfall records at Chestnut Hill Reservoir (Boston) for the 25 year period 1902-1926.

## Run-off

Chadwick, B.F. A simplified study of flood runoff. Mil. Engin. 31(176): 123-125, illus. Mar/Apr. 1939.

"This article is written as an introduction to modern thinking on the problem of flood runoff." Citation to several outstanding articles is included.

Cochrane, V.H. and Barnes, B.S. Analysis of run-off characteristics. Discussion. Amer. Soc. Civ. Engin. Proc. 65(2):371-377, illus. February 1939.

Discussion of a paper of the same title, by O.H. Meyer, appearing in November 1938 Proceedings.

Riesbol, H.S. Dual Parshall flumes measure wide range of flows. Civ. Engin. 9(1):17-19, illus. January 1939.

"References," p. 19.

"Measurement of the runoff of very small watersheds is complicated by the fact that the base flow may be less than 1 cu. ft. per sec

while the 100-year flood may be a thousand times as great. No single hydraulic device can cover accurately such an extreme range; hence a series of measuring units is required. Mr. Riesbol here describes the adaptation of Parshall flumes to such conditions, and explains why they were selected in preference to weirs on a number of small watersheds in eastern Ohio."

Abstract in Engin. Jour. [Canada] 22(2):83. February 1939.

### Sedimentation and Silt

Holmes, G.W. and Rouse, Hunter. A theory of silt transportation. Discussion. Amer. Soc. Civ. Engin. Proc. 65(2):303-307. February 1939. Discussion of paper with above title, by W.M. Griffith appearing in May 1938 Proceedings.

Krumbein, W.C. Size frequency distributions of sediments and the normal phi curve. Jour. Sedimentary Petrology 8(3):84-90, illus. December 1938. "References," p. 90.

McKee, E.D. Original structures in Colorado river flood deposits of Grand Canyon. Jour. Sedimentary Petrology 8(3):76-83, illus. December 1938. "References," p. 83.

### Snowfall

Bernard, Merrill. Weather bureau's mountain snowfall work. Recent developments include an improved type of gage, and field research on the relation between snowfall and runoff. A paper from the 1938 water conservation conference in Salt Lake City. Civ. Engin. 9(3):173-175, illus. March 1939.

Champion, D.L. Snowfall and stream flow. Met. Mag. [London] 74(877):20-22, illus. February 1939.

"The cold spell of December last, produced an excellent demonstration of delayed stream flow at Cuffley Brook, Herts."

### Soil Conservation

All winners in this soil "derby". A county stops tax pilferer. Missouri Ruralist 80(4):11, illus. Feb. 18, 1939.

When soil erosion, loss of soil fertility, money losing farms and unpaid taxes caused trouble in Lafayette county, Missouri, the county court took stock of the situation and decided to do something to encourage erosion control.

Prizes were offered to the men who could do the best job of "checking this pilferer of the county tax money and thus the 'Soil Erosion Derby' was born."

Contestants were judged on their planning, including erosion control systems, strip-cropping and diversion ditches; on construction, including size of terrace and width of channel; on methods of cultivation, which took in their cropping system and weed control; on erosion control of unterraced land; and on outlet and gully control.



Baker, J.A. Mobility and farm tenancy - a rejoinder. Jour. Land & Pub. Utility Econ. 15(1):102-104. February 1939.

Refers to article of same title (Jour. Land & Pub. Utility Econ. 14(2): 207-208, May 1938) by B.O. Williams, in which the author sets up six standards of achievement by which the highly mobile farmer appears to be inferior to his more stable neighbor. He maintains that the unstable farmer (1) does not gain an intimate knowledge of the idiosyncrasies of his farm (2) will not, in all probability, build fences, construct drains and terraces, sow perennial grasses, and turn under cover crops to conserve and build up soil, etc.. Mr. Baker suggests that there is very little incentive to tenants to use their time or money for the making of such farm improvements as terraces, drains, or fences. He says, "It is entirely possible that an incentive to tenants in this regard could be provided by appropriate compensation laws... Likewise it is entirely possible that mobility might be considerably reduced without increasing the desire of tenants to conserve the soil if these tenants were not secure in their stable occupancy. Thus it appears that any benefit of decreased mobility would flow from increased security rather than from the increased stability."

Beutner, E.L. Arroyo control and revegetation in Arizona. Soil Conserv. 4(8):194-195, 202, 204, illus. February 1939.

Harker, Dave. Bottoms up - and hillsides out! Ind. Farmers Guide 95(5):114-115, illus. Mar. 11, 1939.

How Indiana farmers are meeting the need for crop land as a result of retiring slopes to hay and pasture, by drainage and flood control measures on "bottoms" which have been heretofore uncultivable.

Maits, C.B., jr. Erosion research. Penn. Farmer 119(14):328, illus. Dec. 31, 1938.

Cites results of research experiments in potato yields carried on by the Soil Conservation Service and the New York State College of Agriculture near Ithaca, New York since 1935.

"These results show that potatoes planted across the slope on the contour lost only 1-140 as much soil as potatoes planted up-and-down hill, and produced yields from five to fifteen percent higher."

Rockie, W.A. Man's effects on the Palouse. Geogr. Rev. 29(1):34-45, illus. January 1939.

Bibliographical footnotes.

Paper presented before the Association of American Geographers, Ann Arbor, Mich., Dec. 20, 1937.

Wilcox, W.W. Economic aspects of soil conservation. Jour. Polit. Econ. 46(5):702-713. October 1938.

Soil Conservation. Study and Teaching.

Bathurst, E.G. Socializing experiences in conservation. School Life 24(5):149, illus. February 1939.

A brief paragraph deals with suggestions to teachers for assisting pupils to appreciate the Nation's need for conservation of the soil.

Soil Erosion and Control. Foreign Countries.

Albertyn, G. Farming to reclaim worn-out soils[in South Africa]. Cape farmer's striking results from a rotation cropping system based on the use of dryland lucerne and pasture grasses. A national scheme for reconditioning exhausted lands. Farmer's Weekly 56:914-915, illus. Dec. 21, 1938.

Aquino, D.I. and Mamisao, J.P. Soil survey of the Maquiling area. Philippine Agr. 27(8):647-665, illus. January 1939.

"Literature cited," pp. 661-662.

This reconnaissance survey, conducted between 1927 and 1931 brought the following facts concerning erosion: "Soil erosion was marked in Macolod clay loam and Lipa light silty clay loam, rolling phase. The kaingin system is the chief cause for erosion."

The kaingin system is a practice in which virgin forests, especially along mountains and hillsides, are cleared of their valuable timber; and the land is grown to annual crops, such as upland rice, corn, root crop, etc.

Costanzo, G. Land reclamation and improvement in Europe. Internatl. Rev. Agr. 29(10):451E-476E. October 1938; 29(11):532E-542E. November 1938; 29(12):568E-578E. December 1938.

Discusses general aspects as well as organization and development of land reclamation schemes in certain European countries, namely, Germany, Denmark, Great Britain, Italy, the Netherlands, Belgium, Bulgaria, Finland, France, Greece, Hungary, Ireland, Lithuania, Poland, Portugal, Rumania, Sweden, Switzerland, Czechoslovakia.

Greene, H. and Snow, O.W. Soil improvement in the Sudan Gezira.

Jour. Agr. Sci. 29(1):1-34. January 1939.

"References," p. 33-34.

After reviewing the possibility of soil deterioration in the Gezira, and its dependence on change in the exchangeable bases in the soil, the authors give an account of field trials with soil improvers.

"Increased penetration of water, improved supply of nitrogen and higher yields were obtained, but the effects were not lasting."

The conclusion is that "until the nature and extent of chemical changes in the soil are accurately assessed, it is impossible to say what annual expenditure on soil improvers, drainage, growing and disposal of saltbush is needed for maintenance of soil fertility."

Maggs, C.R. The control of soil erosion in the Union. X. Control of water and flow from contour banks. Farming So. Africa 13(152):441. November 1938.



Mohr, E.C.J. Climate and soil in the Netherlands Indies. Bull.Colon. Inst.Amsterdam 1(4):241-251. August 1938.

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Patterson, J.B.E. Soil erosion in England. Nature 143(3611):79. Jan.14, 1939.

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Pazzi, J.J.O. The control of soil erosion in the Union. IX. Is your farm an asset? Farming So.Africa 13(152):433-434. November 1938.

Soil and rainwater are discussed as important factors in economic security.

Schaben, L.J. Soil conservation in New South Wales, Australia. U.S. Dept.Agr.Foreign Agr.Service. Foreign Agr.3(1):27-32. January 1939.

"With the enactment on October 13, 1938 of the Soil Conservation Act of New South Wales, Australia, the way was cleared for vigorous action to arrest the spread of erosion and to conserve soil resources in the farming and grazing lands of that State."

This article discusses the provisions of the act.

Sornay, J. La correction des torrents et la restauration des montagnes en Europe (Control of torrents and restoration of the mountains in Europe) Rev.Internatl.du Bois 5(58):281-289. October 1938.

[South Africa. Secretary for agriculture and forestry. Annual report .. for the year ended 31 August 1938] Farming So.Africa 13(153):459-591, illus. December 1938.

Erosion control, pp.469-471.

Drift-sand control, pp.471-472.

Veld protection and improvement, pp.472-473.

Protection of catchment areas, p.473.

[South African agricultural union congress] Economic farming and marketing reform. Farmer's Weekly 56:350-351, illus. Oct.26, 1938.

The congress devoted some time to soil and water conservation and its related problems. It adopted a resolution "to the effect that the Government should ensure, by legislation if necessary, that the Railway and Provincial Administration and the National Roads Board should take all necessary measures in conformity with the Government's anti-erosion programme to prevent erosion in connection with all schemes of railway and road development on which they embark."

### Soil Studies

Galletti, A.C. and Pantoli, B. L'humus e la fisica del suolo (Humus and physics of the soils) Nuovi Ann.[Italy] Min.Agr.18(2):189-206, illus. Je.30, 1938.

Article in Italian.

"300 samples of soil were examined for permeability (as detd. by the

percolation in a period of 24 hours, from a layer of saturated soil 10 cm. thick and 1 sq.m. in area, under a water pressure of 10 cm.), humus (o/o detd. by quantity of  $O_2$  consumed from a nitrated soln. of  $KMnO_4$ , during the oxidation, in contact with humid material from the soil) and total (Kjeldahl) N. 13 classes of permeability were established. Content of humus and of total N varied inversely with the degree of permeability. The N content of the humus itself also varied inversely with the degree of permeability of the soil." -- G.W. Adriance in Biol. Absts. 12(9):15261. November 1938.

Greaves, J.E. and Bracken, A.F. The influence of cropping on the nitrogen-fixing powers of soil. Soil Sci. 47(3):201-206. March 1939. The investigation was made on soil samples collected from cropped and virgin dry-land farms of Cache and Juan valleys, Utah.

Hart, Newell. Slipping soil scares Bear river Idahoans. West. Farm Life, Mar. 1, 1939, page 12, illus.

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Hopfen, H.J. The use of the new plough-subsoiler and its effect on soil structure. Internatl. Rev. Agr. 29(10):382T-395T. October 1938. Bibliography, pp. 394T-395T.

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Jackson, M.L. and Weldon, M.D. Determination of the weight of water in a soil or subsoil mass in which the moisture content increases with distance from a plant or group of plants. Jour. Amer. Soc. Agron. 31(2):116-127, illus. February 1939. "Literature cited," p. 127.

Kelley, W.P., Woodford, A.O., Dore, W.H. and Brown, S.N. Comparative study of the colloids of a Cecil and a Susquehanna soil profile. Soil Sci. 47(3):175-193, illus. March 1939. "References," p. 193.

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Puri, A.N. and Uppal, H.L. Base exchange in soil: I. A critical examination of the methods of finding base-exchange capacity of soils. Soil Sci. 47(3):245-253. March 1939. "References," pp. 252-253.

Stone, A.A. and Williams, I.L. Measurement of soil hardness. Agr. Engin. 20(1):25-26, illus. January 1939.

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met with in various sections.

"The instrument described here and the method for its use are presented as a starting point for work toward this desirable objective."

White, G.W. Illinoian drift of eastern Ohio. Amer. Jour. Sci. 237(3): 161-174, illus. March 1939.

"References," pp. 173-174.

### Terracing

Beeler, M.N. Money back terracing. Capper's Farmer 50(2):7, illus. February 1939.

Terracing costs compared with cotton yield and prices on a few Texas farms.

Carnes, A. Maintenance of the drainage-type terrace. Soil Conserv. 4(7):165-169, illus. January, 1939.

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Allard, H.A. Ecology of plants in Virginia. Commonwealth 5(12): 18-24, illus. December 1938.

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Whitfield, C.J. Native vegetation of the southern great plains. Bull. Ecol. Soc. America 19(4):30. December 1938.

Abstract of paper given at 24th annual meeting of the Ecological Society at Richmond, Va. Dec. 27-31, 1938.

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Israelsen, O.W. Water application efficiencies. Agr. Engin. 20(2):55-56, illus. February 1939.

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This study is devoted to an attempt to answer these questions.

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Contents appear in English, French and German.

"In the year 1933 a beginning was made in the U.S.A. to publish in half-yearly bulletins a short description of a number of small scale researches performed in that country. (U.S. Bureau of standards. Current hydraulic laboratory research in the United States.)

"Some years ago this example was followed in the U.S.S.R. (U.S.S.R.

Commission for exchange of hydraulic laboratories research results, Leningrad)

"In order to establish such a periodical publication which could be useful in the other countries also, the Working Committee of the I.A.H.S.R. has decided to compose such a bulletin by way of trail. The present paper represents the approximate situation in the middle of 1937... Only twenty-one, of about 45 laboratories concerned, have sent in their communications."

"The object of the bulletin is not to be a collection of short reports on the finished and current researches but merely an enumeration of the work, so that every person interested may see in which laboratories researches concerning certain problems have been dealt with."

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Khosla, A.N., Rose, N.K. and Taylor, E.Mc. Design of weirs on permeable foundations. India. Central Bd. Irrigation. Pub. 12. 178pp., illus. Simla, Sept. 1, 1936. Folio 2 55.9 In222 no.12.

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398 K94

Part I. Sampling, preparation for analysis, mechanical analysis, and statistical analysis, by W.C. Krumbein.

Part II. Shape analysis, mineralogical analysis, chemical analysis and mass properties, by F.J. Pettijohn.

According to the editor, this volume, for students and professionals, constitutes the first adequate handbook published in this country and brings together much hitherto scattered material. The book is "primarily concerned with the methods of petrographic analysis of the sedimentary rocks, including the unconsolidated sediments. It covers every step of the process, from the field sampling to the final graphic and statistical analysis, with due regard for theory as well as method."

Maugini, Armando. L'erosione del terreno agrario nei tropici. Ist. Agr. Colon. Ital. Relaz. e Monog. Agr. Colon. 49. 94pp., illus. Firenze, 1938. 16157 no.49  
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Meyer, W.G. and Work, L.T. Flow of fluids through beds of packed solids. 53pp., illus. New York [n.p.] 1937. 334 M572.  
Dissertation, Columbia university.



Minnesota state planning board. Forestry committee. Idle lands... idle men, by H.C. Moser, prepared at the direction of the Minnesota state planning board's forestry committee. 32pp., illus. St. Paul [1938] 280.7 M6629

"Based on material compiled by the Lakes states Forest experiment station, U.S. Forest Service," this pamphlet contains much to inspire thought" says a review in Nature Magazine, "The booklet deals with a great area of cutover, virtually waste land of northeastern Minnesota. Here is a region stripped of its original timber resources, unable to support the remaining residue of population and constituting a serious and economic problem. It offers a splendid opportunity for planned reconstruction and there are many other areas in the United States in similar plight. This booklet is worth reading."

Mississippi state planning commission. Plan for development and conservation of mineral and water resources... prepared by V.M. Foster, geologist. 19 numb.l., mimeogr. [Jackson, Miss., ?] 280.7 M692Pd

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Caption title: Surface run-off -- yield from small water sheds, Missouri slope area, by Oscar Becker.

Oregon state planning board. Present and potential land development in Oregon through flood control, drainage and irrigation. 22lpp., illus., mimeogr. [Portland?] July 1938. 280.7 Or35Pr

Pentz, J.A. The value of botanical survey and the mapping of vegetation as applied to farming systems in South Africa. South Africa. Dept. Agr. and Forestry. Bot. Survey Mem. 19. 15pp., illus. Pretoria, 1938. 460.46 So8 no. 19. Bibliography, p. 15.

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"Textbook on farming method by which land is cultivated and seed planted in furrows being dammed so as to hold all rain and snow where it falls."

South Dakota state planning board. Land use problems in central South Dakota. 1937. 27pp., illus., processed. [Brookings?] 1939. 280.7 So823L

Straub, Hans. Grundschnellen eine massnahme gegen wasserspiegel- und sohlensenkungen. 52pp., illus. München und Berlin, Verlag von R. Oldenbourg, 1937. 290 St83

At head of title: Untersuchungen aus dem Flussbaulaboratorium der Technischen Hochschule Karlsruhe.

"In certain circumstances the measures taken to regulate the flow of rivers and streams bring about undesirable erosion of the banks and this is sometimes accompanied by a change of water level which adversely affects the agricultural value of a stream. The underwater type of barrage, known in German as 'Grundschnelle', especially when

used to control the flow of swift rivers, produces vortex motion and a standing wave which may lead to the detrimental consequences just mentioned. With the object of investigating the problem, Dr. H. Straub carried out, at the Technische Hochschule, Karlsruhe, a series of tests with models of underwater barrages having a truncated-cone section, and he has given a full account of the experiments in this brochure.

"The practical value of the work under review is enhanced by the fact that Dr. Straub has brought his results into relation with some underwater barrages on rivers in Germany, the Elbe, Isar, Rhein and Weser being referred to in this connection; the comparison reveals a reasonably close agreement between the model and actual systems. The graphical representations of the results obtained deserve special mention, for the information affords a means of estimating the effect of such obstructions on the flow of given water courses. Since the related theory is not easily deduced from general treatises on hydraulics, many students of the subject will welcome the concise explanation of the theory included in this work."

Tanganyika territory. Dept. of veterinary science and animal husbandry. Annual report...1937. 158pp., illus. Dar Es Salaam, Printed by the government printer, 1938. 41.9 T15 1937

Further studies in the conservation of water supplies in semi-arid East Africa; some qualitative determinations on the percolation rate of the rainfall under different types of vegetation at Mpwapwa by R.R. Staples, pp. 110-132.

The effect of fire on mountain grassland, by R.R. Staples, pp. 133-138.

Trapnel, C.G. and Clothier, J.N. The soils, vegetation and agricultural systems of North Western Rhodesia. Report of the ecological survey. 81pp., illus. Lusaka, Printed by the government printer, 1937. 35.4 T68

Part III, Native agricultural development, includes recommendations on improvement of agriculture and control of erosion.

Waterman, E.L. Elements of water supply engineering. 2d ed. 329pp., illus. New York, John Wiley & sons, inc., 1938. 292 W31 Ed.2

This book was planned as a textbook for a short introductory course in water supply engineering for civil engineering students. The original text has been expanded in the second edition to include a description of the Hardy Cross method of flow analysis in pipe networks; and a short description of the Proctor method of earth dam design.

Watson, G.C. The soil and social reclamation. 173pp. London, P.S. King & son, ltd., 1938. 56W33

"The immediate purpose of this book is to vindicate the soil as the preserver of life, and the final arbiter in human affairs; and to stimulate interest in these subjects. It does not claim to be a technical work, but merely an account of some of the facts and functions of the soil which in the rush of life to-day are often overlooked, but which have a direct bearing upon the affairs of everyday life." --Preface.



Wight, H.M. Field and laboratory technic in wildlife management. 107pp., illus. processed. Ann Arbor, University of Michigan press, 1939. 411 W634

"The purpose of this manual, which has been prepared primarily for the use of students in the School of Forestry and Conservation and the University of Michigan, is to present accurate, rapid, and concise methods of obtaining scientific information in the field of wildlife management with particular reference to game birds and game mammals."

Wisconsin university. Extension division. Department of public instruction. Public problems in landscape design. Part I. Roads - highways - roadside development, prepared by Paula Birner under the joint direction of Franz A. Aust... 56pp., illus., mimeogr. Madison, 1938. 98 W75 Pt. 1  
Prepared and mimeographed under W.P.A. Project 6856.  
References, pp. 50-56.

Wyman, Donald. Hedges, screens & windbreaks; their uses, selection and care. 249pp., illus. New York, Whittlesey House, McGraw-Hill book company, inc. [c1938] 99.05 W98

#### STATE EXPERIMENT STATION AND EXTENSION PUBLICATIONS

##### Arizona

McGeorge, W.T. Factors contributing to the reaction of soils and their pH measurement. Ariz. Agr. Exp. Sta. Tech. Bull. 72. 126pp., illus. Tucson, Sept. 15, 1938. 100 Ar4[t] no. 78

##### Idaho

Kulp, M.R. Conserving irrigation water. Idaho Agr. Col. Ext. Circ. 61. 11pp., illus. Moscow, April 1938. 275.29 Id13C no. 61

##### Iowa

Holmes, C.L. and Crickman, C.W. Types of farming in Iowa. II. Iowa Agr. Exp. Sta. Bull. 374. 248pp., illus. Ames, August 1938. 100 Io9[b] no. 374

Reports types of farming in Iowa as they existed in 1932 previous to the effects of the drouths of 1933 and 1934 and the inauguration of the program of agricultural adjustment. The data is valuable as a background for measuring changes in farming in the more recent period which has been one of violent fluctuations from year to year.

Iowa agricultural experiment station. Report on agricultural research for the year ending June 30, 1938. Part I. Project reports, publications, staff financial statement. 262pp. Ames, 1938 100 Io9[a] 1937/38 pt. 1  
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